



## CLAIMS LISTING

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4 **193. (NEW)** A computer-implemented business method for managing a business  
5 comprising:

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7 (a) identifying a first dynamic process used by a first business, said first dynamic process  
8 comprising:

9 a plurality of links among the components;

10 a plurality of business decisions;

11 a plurality of activities and operations comprising at least a first business  
12 operation implemented based upon a business decision;

13 at least a first objective;

14 at least a first subordinate objective subordinate to the first objective;

15 at least a first Actor, any Actor being at least one of human agent, semi-automated  
16 agent, and automated agent;

17 a plurality of Measurable values, comprising at least a first Measurable value;

18 at least a first condition; and,

19 at least a first event;  
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21 (b) creating a model (i.e., a representation) of the first dynamic process, said model  
22 implemented on a computer and comprising:

23 (1) instantiating a plurality of Elements, any Element being at least one member  
24 of an element set comprising Goal, Rule, Rule Set, Condition, Action, Constraint,  
25 Measurable value, and Delegation;

26 (2) instantiating a plurality of Rules, each Rule comprising at least a first  
27 Condition that is satisfied when it evaluates to a specified and predetermined  
28 value and at least a first Action that is triggered when the first Condition is  
29 satisfied;

30 (3) instantiating at least a first objective Rule Set representing a portion of the first  
31 dynamic process having the first objective and having a plurality of Rules; and,

- 32 (4) storing the first objective Rule Set in a database;
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- 34 (5) declaring and stating:
- 35 at least a part of the first objective of said first dynamic process as a set of
- 36 measurable Goals and Constraints comprising at least a first Goal; and,
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- 38 at least the first objective Rule Set, said Rules in said objective Rule Set
- 39 being defined to accomplish at least the first Goal by the combination of at
- 40 least one subset thereof, and said Rules in said objective Rule Set act in any
- 41 order subject to the limitation that, for any specific Rule in said objective
- 42 Rule Set, that specific Rule's Condition must be satisfied and applicable
- 43 Constraints met before that specific Rule's Action may be triggered;
- 44
- 45 (6) determining a triggered Action of at least a first Rule and its relative order
- 46 with respect to a second Rule's Action, and therefore to the model of rules of
- 47 behavior of the dynamic process, at least partially by logical inference from
- 48 Rules, Conditions, Constraints, and temporal order of satisfaction and activation,
- 49 rather than said relative order being predetermined and required by human
- 50 mandate;
- 51
- 52 (7) refining the model of the first dynamic process to provide increasing detail
- 53 and finer granularity comprising:
- 54 specifying a set of Rules for accomplishing the first subordinate objective;
- 55 and,
- 56 stating the first subordinate objective as a set of subordinate, measurable
- 57 Goals and subordinate Constraints;
- 58
- 59 (8) delegating via Delegation to at least one specific set of Actors comprising at
- 60 least one Actor:
- 61 at least the first subordinate objective;
- 62 a set of Rules for accomplishing said first subordinate objective;

63 authority via at least one Rule stating authority for attaining the subordinate,  
64 measurable Goals of said first subordinate objective;  
65 accountability via at least one Rule stating accountability for attaining the  
66 subordinate, measurable Goals of said first subordinate objective; and,  
67 responsibility via at least one Rule stating responsibility for attaining the  
68 subordinate, measurable Goals of said first subordinate objective subject to  
69 the Constraints and subordinate Constraints;  
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71 (9) determining as input to the model the fact that that at least one Rule's  
72 Condition is satisfied and triggering said Rule's Action further comprising;  
73 incorporating as input to said Rule's Condition at least the first Measurable  
74 value representing a factual circumstance from at least one of the first  
75 dynamic process' internals, a source external to said first dynamic process  
76 including external interaction, and a source in the real world outside the first  
77 business;  
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79 (10) modifying the model through the Action of some Rule whose Condition is  
80 triggered by at least one input from an event in the real world and said Action  
81 results in one of creating, deleting, modifying, and correcting at least one of  
82 Element and Actor;  
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84 (11) specifying at least partially through a declarative and therefore non-  
85 procedural representation a plurality of elements and each of the steps of  
86 declaring and stating, refining, delegating, determining, and modifying;  
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88 (c) generating in accordance with the satisfaction of at least one Rule of the model, at  
89 least a first output contributing to any of initiating, controlling, managing, and modifying  
90 any portion of the dynamic process, the first output being at least one member of an  
91 output set comprising:

output modifying of any portion of any dynamic process comprising operation, decision, activity, process, factual circumstance, event, Measurable value, goals, objectives, constraints, condition, actions, Actor, and links among components; output modifying any of operation, decision, activity, process, factual circumstance, event, Measurable value, goals, objectives, condition, Actor, and links external to the first dynamic process; output implementing at least one business decision which initiates an operational process that in turn produces a measurable result detectable via some Measurable value; output modifying at least one Element of the model; output modifying at least one link among Elements of the model; output initiating, via at least one Actor responsive to at least one Action, at least a first automatic operation belonging to the first dynamic process; and, output of at least one Action implemented by at least one Actor and deriving at least a second measurable value from said at least one Action implemented by at least one Actor;

(d) adapting the model according to any of changing business, dynamic process, and factual circumstances comprising:

incorporating changes to at least one Element of the model in accordance with changes in or additional detail of the first dynamic process;

(e) representing some factual circumstance created via any of triggered Rule's Action, operational process, and Actor in the model and satisfying at least one Condition of at least one Rule in response to said factual circumstance;

(f) inferring a first process representation of a first emerging behavioral pattern of the first dynamic process comprising:

detecting that a plurality of Rules that have been triggered;

inferring through logical inference that the plurality of Rules are partially ordered in time;

incorporating in the model a representation of a dynamic pattern of operations driven by real-world conditions; storing the first process representation as part of the model; and, making the first behavioral pattern of the first dynamic process emerge via the first process representation;

and,

(g) through the steps of creating, generating, adapting, representing, and inferring, actively and declaratively managing any portion of the first dynamic process via the model and therefore the model's output.

194. (NEW) A method as in Claim 193 further comprising iterating at least one of the steps of declaring and stating, delegating, determining, and modifying.

195. (NEW) A method as in Claim 193 further comprising the step of redeclaring and restating at least one Action of at least one Rule as a second dynamic process.

196. (NEW) A method as in Claim 193 wherein the dynamic process is a business's operational flow, said operational flow being that business's fundamental business activity of involving any of goods and services, wherein said involving comprises any of managing, providing, producing, manufacturing, distributing, and provisioning.

197. (NEW) A method as in Claim 193 further comprising adding at least one new Element to the model of the dynamic process in response to at least one input.

154 198. (NEW) A method as in Claim 193 further comprising the step of using the  
155 measurable Goals and Measurable values to enable assessment of any member of a set of  
156 assessments, that set of assessments comprising risk of error, minimum contribution of  
157 any Rule to the Goal, maximum contribution of any Rule to the Goal, risk of deviation  
158 from the Goal due to the Action of any Rule, performance of at least one Actor, and  
159 relative efficiencies among any two Actors.

162 199. (NEW) A method as in Claim 193 further comprising using the deviation of  
163 Measurable values from measurable Goals for at least one member of a set comprising  
164 accounting control, regulatory control, and reporting without first requiring that the  
165 dynamic process terminate.

168 200. (NEW) A method as in Claim 193 wherein said method forms a business  
169 autopilot, which, once initiated, requires no human intervention to manage successful  
170 execution of said subset of the dynamic pattern of operations even when Actions and  
171 operations are implemented by human Actors.

174 201. (NEW) A method as in Claim 193 further comprising:  
175 including a set of Constraints consisting of at least one Constraint;  
176 including a first Rule Set consisting of at least a first contained Rule;  
177 including a second Rule Set consisting of at least a second contained Rule; and,  
178 including a set of ordering Rules consisting of at least one ordering Rule;  
179 wherein the relative order by which each first contained Rule in the first Rule Set and at  
180 least a second contained Rule in the second Rule Set are satisfied is determined according  
181 to at least one member of a set comprising the set of Constraints, implicit Rule  
182 precedence making the Action of each contained Rule in the first Rule Set satisfy a  
183 Condition of the second contained Rule, the set of Constraints, and the set of ordering  
184 Rules.

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187 202. (NEW) A method as in Claim 193 further comprising declaring and stating at least  
188 a first Rule Set and a second Rule Set, wherein the second Rule Set is subordinate to the  
189 first Rule Set, and wherein the second Rule Set inherits from the first Rule Set at least  
190 one Condition of a Rule in the first Rule Set as a Constraint on the second Rule Set and at  
191 least one Action of a Rule in the first Rule Set as a Goal of the second Rule Set.

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194 203. (NEW) A method as in Claim 193 further comprising declaring and stating at least  
195 a first Rule Set and a second Rule Set, wherein the second Rule Set is subordinate to the  
196 first Rule Set, and wherein at least one change in Constraints by Action of at least one  
197 Rule of the second Rule Set is passed to the first Rule Set.

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200 204. (NEW) A method as in Claim 193 wherein said declarative and therefore non-  
201 procedural representation is at least one member of a representation set comprising  
202 symbolic logic and declarative computer language.

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205 205. (NEW) A method as in Claim 193 wherein for at least one Rule:  
206 the Condition of said Rule detects a difference between at least one Element of  
207 the model of the said dynamic process and a Measurable value from at least one  
208 input, and the Action of said Rule has an effect on at least that one Element of  
209 model of the said first dynamic process by modifying that one Element to do at  
210 least one member of a response set comprising accommodate the Measurable  
211 value, and adjust performance of said dynamic process as indicated by the  
212 Measurable value.

206. (NEW) A method as in Claim 193 further comprising at least one of analyzing the efficiency of a business operation by measuring the deviation of Measurable values from measurable Goals.

207. (NEW) A method as in Claim 193 further comprising:  
incorporating a set of resolving Constraints comprising at least one member of a resolving set comprising a resolving Constraint and a resolving Rule; and,  
incorporating at least one ambiguous Rule;  
wherein said set of resolving Constraints determines whether the ambiguous Rule's Action will be triggered when the evaluation of the ambiguous Rule's Condition is not a value that has been otherwise determined to cause the ambiguous Rule's action to trigger.

208. (NEW) A method as in Claim 193 wherein, in the step of delegating, at least one member of what is delegated to one specific Actor is a consequence of the Rules, Constraints, and measurements associated with an Actor.

209. (NEW) A method as in Claim 193 wherein at least one Element maintains consistency among any combination of authority to act, responsibility, response to operational failure, and accountability.

210. (NEW) A method as in Claim 193 wherein at least one Rule makes explicit why Actions are undertaken and what is to be achieved.

211. (NEW) A method as in Claim 193 further comprising replacing a first unrefined Rule by a set of refinement Rules that include at least the Action of the first unrefined Rule without the set of refinement Rules including the first unrefined Rule.

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248 212. (NEW) A method as in Claim 211 further comprising:

249 incorporating a first risk of error associated with the first unrefined Rule;

250 incorporating a second risk of error associated with a second refinement Rule

251 belonging to the set of refinement Rules;

252 wherein the second refinement Rule has the least risk of error of any refinement Rule in

253 the set of refinement Rules; and wherein the second risk of error is not greater than the

254 first risk of error.

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257 213. (NEW) A method as in Claim 193 wherein the step of declaring and stating at least

258 one objective Rule Set comprises stating at least a first objective Rule Set and a second

259 objective Rule Set, wherein the first objective Rule Set operates at a first level of the

260 dynamic process and the second objective Rule Set operates at a second level of the

261 dynamic process.

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264 214. (NEW) A method as in Claim 213 wherein said first and second levels are

265 indistinct and said first objective Rule Set and said second objective Rule Set form a

266 representation of a peer to peer organization.

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269 215. (NEW) A method as in Claim 213 wherein said first and second levels are distinct

270 and said first objective Rule Set and said second objective Rule Set form a representation

271 of a hierarchical organization.

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274 216. (NEW) A method as in Claim 193 further comprising declaring and stating at least

275 a first Rule Set and a second Rule Set, wherein the second Rule Set is subordinate to the

276 first Rule Set, and wherein the first Rule Set further receives, from the second Rule Set,

the result of an Action by a Rule of the second Rule Set as satisfaction of at least one Condition of a Rule of the first Rule Set.

217. (NEW) A method as in Claim 216 wherein the first Rule Set further comprises at least a superior objective and wherein the Action of the second Rule Set conveys information to the first Rule Set sufficient for the first Rule Set to alter at least the superior objective when the superior objective does not conform to a Measurable value from the real world.

218. (NEW) A method as in Claim 193 further comprising:  
including at least a second Rule Set comprising a set of Rules that are connected and have no Rule for which both its Condition is not satisfied by some combination of Actions and events, and its Action does not eventually in combination with the Actions of other Rules in the set satisfy the Conditions of at least one Rule;  
including at least a first satisfied Rule in said second Rule Set whose Condition has been satisfied at least once;  
and,  
further including a set of pairs comprising an identification of at least one satisfied Rule and a time said satisfied Rule was satisfied, said set of pairs being partially ordered and constituting a first subordinate process.

219. (NEW) A method as in Claim 218 wherein the second Rule Set comprises the entire set of satisfied Rules in the model of the first dynamic process and no explicit ordering of the Rules in the second Rule Set is provided in representing said first dynamic process.

308 220. (NEW) A method as in Claim 193 wherein said set of Rules includes at least one  
309 anticipatory Rule, the satisfaction of the Condition portion of said anticipatory Rule being  
310 merely a possibility and neither a prediction nor a mandate, when said anticipatory Rule  
311 is initially stated.

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314 221. (NEW) A method as in Claim 220 wherein said Condition of said anticipatory  
315 Rule incorporates at least one conjunct which, at the time of creation of the Rule,  
316 incorporates a Measurable value that is contrary to the known and projected state of the  
317 real world.

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320 222. (NEW) A method as in Claim 193 further comprising:  
321 storing said declarative and therefore non-procedural representation in a static and  
322 stable form; and,  
323 preserving human knowledge of said dynamic process.

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326 223. (NEW) A method as in Claim 222 further comprising the steps of  
327 organizing in a first business entity said declarative and therefore non-procedural  
328 representation of said first dynamic process for conveyance to a second business  
329 entity; and,  
330 conveying said declarative and therefore non-procedural representation from the  
331 first business entity to the second business entity.

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334 224. (NEW) A method as in Claim 222 wherein said declarative and therefore non-  
335 procedural representation of said first dynamic process stores knowledge of at least one  
336 member of a set comprising organizational management, at least one model of business  
337 organization, at least one operational process, and at least one strategic process.

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340 225. (NEW) A method as in Claim 222 further comprising the steps of:

341 retrieving at least a portion of said declarative and therefore non-procedural

342 representation; and,

343 instantiating said portion of said declarative and therefore non-procedural

344 representation as a second dynamic process in a business.

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346 226. (NEW) A method as in Claim 193 wherein the step of delegating to at least one

347 specific Actor further comprises:

348 a first Actor at a first level generating a representation of a plurality of business

349 Rules comprising possible Conditions, each Condition comprising at least one

350 member of a set comprising factual circumstance, market situation, business

351 event, and Measurable value, and joined with at least one corresponding desired

352 Action matching a first measurable Goal;

353 a second Actor at a second level identifying a Goal-achieving set of business

354 Rules enabling said first measurable Goal to be attained;

355 and,

356 said second Actor communicating at least a first result of the Goal-achieving set

357 of business Rules to said first Actor.

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360 227. (NEW) A method as in Claim 226 wherein said plurality of business Rules are

361 responsive to a plurality of events, and wherein the actual operation of the plurality of

362 business Rules are combined to form a business process independent of any pre-existing

363 definition of the business process.

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366 228. (NEW) A method as in Claim 226 wherein said measurable Goal is expressed as at

367 least one goal Rule comprising a goal Condition which identifies said measurable Goal

368 and a goal Action which specifies any combination of the members of a measure set

369 consisting of a measure of success, a measurement Constraint, and a measure of failure.

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372 229. (NEW) A method as in Claim 226 wherein at least one of the first Actor and the  
373 second Actor further:

374 identifies the maximum acceptable risk associated with each risky Rule in a first  
375 risky Rule Set at the second level;

376 determines the risk associated with each risky Rule; and,

377 for each risky Rule in the first risky Rule Set with risk that is not below the  
378 maximum acceptable risk associated with said risky Rule, further refines Actions  
379 of each such risky Rule by delegating its Actions as a Goal to a third Rule Set,  
380 and the third Rule Set is at a third level.

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383 230. (NEW) A method as in Claim 226 wherein the step of communicating further  
384 comprises stating at least one Rule having at least one Condition responsive to said  
385 desired Action and having an Action that performs said step of communicating.

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388 231. (NEW) A method as in Claim 226 wherein said first result is a qualitative measure  
389 of at least one member of a set of measurable properties comprising performance and  
390 Goal completion.

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393 232. (NEW) A method as in Claim 226 wherein said first Actor effects Delegation to at  
394 least one subordinate Actor any combination of any number of the members of a  
395 Delegation set consisting of responsibility, accountability, and authority that belong to  
396 the first Actor.

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399 233. (NEW) A method as in Claim 232 wherein said first Actor further effects  
400 Delegation by a Delegation Rule comprising at least one Delegation Condition which

tests the appropriateness of achieving said desired Action and at least one Action which identifies at least one Actor as recipient of said Delegation.

234. (NEW) A method as in Claim 233 wherein the Delegation Rule delegates authority by at least one member of a set comprising establishing at least one Rule Set, modifying at least one Rule Set, and deleting at least one Rule Set.

235. (NEW) A method as in Claim 232 wherein the first Actor delegates authority by at least one member of a set comprising establishing at least one Rule Set, modifying at least one Rule Set, and deleting at least one Rule Set.

236. (NEW) A method as in Claim 232 wherein said Delegation of accountability is accomplished by enabling at least one member of a set, comprising said second Actor and said second Rule, to alter at least one member of a set comprising a measure of predefined success and a measurement process.

237. (NEW) A method as in Claim 226 further comprising identifying a second Actor according to a Goal stated as a set of requirements Rules and a set of requirements Constraints, and according to measurements stated as a set of capabilities Rules.

238. (NEW) A method as in Claim 237 wherein each requirement Rule in said set of requirements Rules comprises both:

at least one requirements Condition identifying at least one member of a set comprising the desired Action and at least one capability required to accomplish said desired Action; and,

at least one requirements Action identifying at least one member of a set  
comprising at least one capability of said second Actor and said desired Action.

239. (NEW) A method as in Claim 237 wherein each capability Rule in said set of  
capabilities Rules consists of at least one member of a set comprising:  
at least one capabilities Condition identifying at least one Actor and at least one  
capabilities Action identifying at least one capability of said Actor; and,  
at least one capabilities Condition identifying at least one capability, and at least  
one capabilities Action identifying at least one Actor having said capability.

240. (NEW) A method as in Claim 237 further comprising a step of matching said  
second Actor with said desired Goal by at least one criteria for comparing at least one  
requirements Rule and at least one capabilities Rule.

241. (NEW) A method as in Claim 240 wherein said criteria is established using at least  
one member of a match set comprising a best fit match algorithm, a fuzzy match  
algorithm, an approximate match algorithm, and an exact match algorithm.

242. (NEW) A method as in Claim 193 wherein the step of modifying at least one  
Element through the Action of at least a Rule whose Condition is triggered by at least one  
input from at least one real-world event further comprises:

defining a first adaptation process comprising at least one adaptation Rule;

constructing the adaptation Rule from a third Rule and requiring in the adaptation  
Rule's Action at least one member of a set of Actions comprising Element  
creation, self-modification, feedback, contradiction resolution, conflict resolution,

462 correction for failure, and decision making, each of which is not already any  
463 previously existing Rule's Action;

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465 satisfying the Condition of the adaptation Rule through an event; and,

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467 affecting at least one Element through the Action of the adaptation Rule.

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470 243. (NEW) A method as in Claim 242 wherein said first adaptation process is  
471 independent of any external agent.

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474 244. (NEW) A method as in Claim 242 further comprising monitoring performance by  
475 and against specific metrics;

476 wherein the Condition of the adaptive Rule is satisfied by performance deviations  
477 from the specific metrics; and the Action of the adaptive Rule is representative of  
478 at least one member of a set comprising business events, business measures,  
479 business decisions, business Rules, and business processes.

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482 245. (NEW) A method as in Claim 242 further comprising:  
483 modifying, through the Action of at least one adaptation Rule, at least a first  
484 changed Rule instantiated at a first level;  
485 effectively modifying through the first changed Rule instantiated at a first level at  
486 least a first Goal of the first level; and  
487 permitting but not requiring intervention from a higher level.

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490 246. (NEW) A method as in Claim 242 further comprising:  
491 continuously monitoring for at least one occurrence of the at least one real-world  
492 event; and,

continuously modifying the Elements of the dynamic process, in response to the occurrence of the at least one real-world event.

247. (NEW) A method as in Claim 242 further comprising:  
incorporating at least one member of a set of dynamic processes comprising creation, deletion, modification, and correction of both objectives and Elements; linking the adaptation process to at least one member of the set of dynamic processes; and,  
modifying the objectives and Elements by the adaptation process according to at least one member of a set comprising Conditions and Constraints.

248. (NEW) A method as in Claim 242 wherein the step of modifying at least one Element comprises:  
detecting a contradiction;  
changing at least one Rule Set, further comprising:  
identifying at least a first and second conflicting Rule; and,  
resolving the contradiction by at least one member of a set comprising adding a new Constraint, altering a existing Constraint, adding a new Rule, altering at least one of the first and second conflicting Rules, and eliminating at least one of the first and second conflicting Rules; and,  
logically differentiating the Actions of the first and second conflicting Rules.

249. (NEW) A method as in Claim 242 further comprising reducing at least one operational latency in the dynamic process through the Action of the adaptation Rule.

522 250. (NEW) A method as in Claim 242 wherein the adaptation Rule's Condition is  
523 satisfied when a first contradiction occurs, and the adaptation Rule's Action modifies at  
524 least one Element.

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527 251. (NEW) A method as in Claim 250 wherein the first contradiction comprises at  
528 least first and second logically-conflicting Elements, and the adaptation Rule's Action  
529 selects one of the conflicting Elements through at least one member of a set of selection  
530 techniques comprising random selection, deterministic selection, and arbitrary selection,  
531 and modifies the selected Element.

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534 252. (NEW) A method as in Claim 251 wherein the modification of the selected  
535 Element prevents simultaneous application of the first and second logically-conflicting  
536 Elements.

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539 253. (NEW) A method as in Claim 250 wherein the first contradiction comprises at  
540 least first and second logically-conflicting Elements, and the adaptation Rule's Action  
541 alters at least one of the first and second logically-conflicting Elements and creates a  
542 differentiation between the first conflicting Rule's Condition and the second conflicting  
543 Rule's Condition, said differentiation preventing the first conflicting Rule's Condition  
544 and the second conflicting Rule's Condition from being satisfied by the same set of  
545 measurable inputs and Elements.

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548 254. (NEW) A method as in Claim 253 wherein the adaptation Rule's Action alters at  
549 least one of the first and second logically-conflicting Elements, modifies the first  
550 logically-conflicting Element to include a Constraint not present in the second logically-  
551 conflicting Element, and prevents the possibility of the first and second logically-  
552 conflicting Elements from simultaneously occurring.

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555 255 (NEW). A method as in Claim 242 wherein the step of constructing the adaptation  
556 Rule further comprises:

557       stating the adaptation Rule's Condition to be satisfied when a first failure occurs;

558       and,

559       stating the adaptation Rule's Action to both incorporate modification of at least  
560 one Element and effect a correction for the first failure.

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563 256. (NEW) A method as in Claim 255 wherein the first failure comprises not attaining  
564 a first Goal and the modification of at least one Element enables the first Goal to be  
565 attained by correcting at least one member of a set comprising at least one cause of the  
566 first failure and at least one effect of the first failure.

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569 257. (NEW) A method as in Claim 255 wherein the modification of at least one  
570 Element includes at least one member of a set of steps comprising creating, modifying,  
571 and deleting a second adaptation Rule.

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574 258. (NEW) A method as in Claim 255 wherein the first failure comprises not detecting  
575 a Measurable value and the modification of at least one Element comprises at least one  
576 member of a set comprising creating the Element, modifying the Element, and deleting  
577 the Element.

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580 259. (NEW) A method as in Claim 255 wherein a second failure comprises not  
581 attaining a second Goal and the modification of at least one Element includes the step of  
582 redeclaring and restating at least one Action of at least one Rule as a second dynamic  
583 process.

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586 260. (NEW) A method as in Claim 255 wherein the first failure comprises not attaining  
587 a first Goal and the modification of at least one Element enables said first Goal to be  
588 attained by correcting at least one member of a failure set comprising at least a first cause  
589 of the first failure and at least a first effect of the first failure.

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592 261. (NEW) A method as in Claim 255 wherein the adaptation Rule's Action modifies  
593 at least a member Rule of the objective Rule Set and, when the member Rule's Condition  
594 is satisfied, the member Rule's Action modifies, without human intervention, at least a  
595 first member of the set of measurable Goals.

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598 262. (NEW) A method as in Claim 255 wherein the adaptation Rule's Action modifies  
599 at least a first Adaptable Rule of a set of Rules and, when the first adaptable Rule's  
600 Condition is satisfied, the first adaptable Rule's Action modifies, without human  
601 intervention and without modification of any Rule of the objective Rule Set, at least a  
602 first member of a set comprising subordinate Goals and measurable Goals.

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605 263. (NEW) A method as in Claim 255 wherein the step of declaring and stating at least  
606 one objective Rule Set further comprises:

607       stating at least a first objective Rule Set and a second objective Rule Set, wherein  
608       the first objective Rule Set operates at a first level of the dynamic process and the  
609       second objective Rule Set operates at a second level of the dynamic process;  
610       and wherein the adaptation Rule's Condition effectively defines the need for a  
611       closed-loop effect in said first level and the adaptation Rule's Action changes at  
612       least one Element in said second level.

264. (NEW) A method as in Claim 255 wherein the step of modifying at least one Element comprises modifying at least one member of a set comprising Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable value, and Delegation.

265. (NEW) A method as in Claim 255 wherein the step of declaring and stating at least one objective Rule Set comprises stating at least a first objective Rule Set and a second objective Rule Set:

wherein the first objective Rule Set operates at a first level of the dynamic process and the second objective Rule Set operates at a second level of the dynamic process; and,  
wherein a first Goal is associated with the first level and a second Goal is associated with the second level; and the first Goal and the second Goal overlap by having a sub-goal in common.

266. (NEW) A method as in Claim 265 further comprising modifying the overlap to avoid at least one member of a set comprising confrontation problems and race-condition problems.

267. (NEW) A method as in Claim 193 wherein the step of declaring and stating at least one objective Rule Set comprises stating at least a first objective Rule Set and a second objective Rule Set, wherein the first objective Rule Set operates at a first level of the dynamic process and the second objective Rule Set operates at a second level of the dynamic process, and further comprising an organizing Rule comprising:

an organizing Condition; and

an organizing Action;

and the organizing Condition is satisfied by the Condition of at least one Rule in said first objective Rule Set and the organizing Action comprises at least the second objective Rule Set.

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648 268. (NEW) A method as in Claim 267 wherein said organizing Action delegates at  
649 least one member of the set comprising a Rule Set, authority, accountability, and  
650 responsibility, and said organizing Rule creates a hierarchical Delegation.

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653 269. (NEW) A method as in Claim 193 wherein the step of declaring and stating at least  
654 one objective Rule Set further comprises stating at least a first objective Rule Set and a  
655 second objective Rule Set, wherein the first objective Rule Set operates at a first level of  
656 the dynamic process and the second objective Rule Set operates at a second level of the  
657 dynamic process, and wherein the response to at least one Action of at least one Rule in  
658 the first objective Rule Set becomes at least one Condition of at least one Rule in the  
659 second objective Rule Set.

660

661

662 270. (NEW) A method as in Claim 269 wherein the first level and the second level are  
663 identical, and at least one Rule in the first Rule Set receives at least one response of at  
664 least one Rule in the second Rule Set as its Condition.

665

666

667 271. (NEW) A method as in Claim 222 further comprising:  
668 analyzing the business operations represented in said declarative and therefore  
669 non-procedural representation; and,  
670 refining and tuning at least one member of a set comprising decision, business  
671 rule, and business process.

672

673

674 272. (NEW) A computer-implemented business method for actively and declaratively  
675 managing, implementing, and executing a first dynamic process incorporating a dynamic

pattern of operations driven by real-world conditions, through which at least a first behavioral pattern emerges, comprising:

- capturing a first decision as a Rule set comprising at least a first Rule, a second Rule, and a third Rule, each Rule comprising an Action and a Condition;
- satisfying the first Rule's Condition via a first Measured value;
- determining that the first Rule's Action has triggered the second Rule's Condition;
- storing the Rule Set in a rules database;
- inferring that all Rules in the Rule set that have been triggered form a partially ordered set wherein Actions of preceding Rules trigger Conditions of subsequent Rules wherein said dynamic process comprises the set of possible Conditions and Actions of said partially ordered set of Rules;
- storing a declarative representation of the partially ordered set of Rules in a process database;
- displaying both a representation of the first dynamic process as a business process model and a first business metric derived from at least a second Measured value;
- and,
- implementing the third Rule's Action via an operations interface.

273. (NEW) An apparatus for actively and declaratively managing, implementing, and executing a first dynamic process incorporating a dynamic pattern of operations driven by real-world Conditions, through which at least a first behavioral pattern emerges, comprising:

(1) static memory containing a representation of the first dynamic process, comprising:

- a plurality of links among components;
- a plurality of business decisions;
- a plurality of activities and operations comprising at least a first business operation implemented based upon a business decision;
- at least a first objective;
- at least a first subordinate objective subordinate to the first objective;
- at least a first Actor, any Actor being at least one of human agent, semi-automated agent, and automated agent;
- a plurality of Measurable values, comprising at least a first Measurable value;
- at least a first condition; and,
- at least a first event;

(2) static memory containing a declarative and therefore non-procedural model of the first dynamic process further comprising

- a plurality of Elements, any Element being at least one member of an element set comprising Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable value, and Delegation;
- a plurality of Rules, each Rule comprising at least a first Condition that is satisfied when it evaluates to a specified and predetermined value and at least a first Action that is triggered when the first Condition is satisfied;
- at least a first objective Rule Set representing a portion of the first dynamic process having the first objective and having a plurality of Rules and stored in a database;

737  
738 means for declaring and stating:

739 at least a part of the first objective of said first dynamic process as a  
740 set of measurable Goals and Constraints comprising at least a first  
741 Goal; and,  
742 at least the first objective Rule Set, said Rules in said objective Rule  
743 Set being defined to accomplish at least the first Goal by the  
744 combination of at least one subset thereof, and said Rules in said  
745 objective Rule Set being allowed to act in any order subject to the  
746 limitation that, for any specific Rule in said objective Rule Set, that  
747 specific Rule's Condition must be satisfied and applicable Constraints  
748 met before that specific Rule's Action may be triggered;

749  
750 means for determining the triggered Action of at least a first Rule and its  
751 relative order with respect to a second Rule's Action, and therefore to the  
752 model of rules of behavior of the dynamic process, at least partially by  
753 logical inference from Rules, Conditions, Constraints, and temporal order  
754 of satisfaction and activation, rather than said relative order being  
755 predetermined and required by human mandate;

756  
757 means for refining the model of the first dynamic process to provide  
758 increasing detail and finer granularity comprising:

759 specifying a set of Rules for accomplishing the first subordinate  
760 objective; and,  
761 stating the first subordinate objective as a set of subordinate,  
762 measurable Goals and subordinate Constraints;

763  
764 means for delegating via Delegation to at least one specific set of Actors  
765 comprising at least one Actor:

766 at least the first subordinate objective;  
767 a set of Rules for accomplishing said first subordinate objective;

authority via at least one Rule stating authority for attaining the  
 subordinate, measurable Goals of said first subordinate objective;  
 accountability via at least one Rule stating accountability for attaining  
 the subordinate, measurable Goals of said first subordinate objective;  
 and,  
 responsibility via at least one Rule stating responsibility for attaining  
 the subordinate, measurable Goals of said first subordinate objective  
 subject to the Constraints and subordinate Constraints;

means for determining as input to the model the fact that at least one  
 Rule's Condition is satisfied and triggering said Rule's Action further  
 comprising:

incorporating as input to said Rule's Condition at least the first  
 Measurable value representing a factual circumstance from at least one  
 of the first dynamic process' internals, a source external to said first  
 dynamic process including external interaction, and a source in the real  
 world outside the first business;

means for modifying the model through the Action of some Rule whose  
 Condition is triggered by at least one input from an event in the real world  
 and said Action results in one of creating, deleting, modifying, and  
 correcting at least one of Element and Actor;

means for specifying at least partially through a declarative and therefore  
 non-procedural representation a plurality of Elements and each of the steps  
 of declaring and stating, refining, delegating, determining, and modifying;

(3) means for generating in accordance with the satisfaction of at least one Rule of  
 the model, at least a first output contributing to any of initiating, controlling,  
 managing, and modifying any portion of the dynamic process, the first output  
 being at least one member of an output set comprising:

799 output modifying of any portion of any dynamic process comprising  
800 operation, decision, activity, process, factual circumstance, event,  
801 Measurable value, goals, objectives, constraints, condition, actions, Actor,  
802 and links among components;  
803 output modifying any of operation, decision, activity, process, factual  
804 circumstance, event, Measurable value, goals, objectives, condition, Actor,  
805 and links external to the first dynamic process;  
806 output implementing at least one business decision which initiates an  
807 operational process that in turn produces a measurable result detectable via  
808 some Measurable value;  
809 output modifying at least one Element of the model;  
810 output modifying at least one link among Elements of the model;  
811 output initiating, via at least one Actor responsive to at least one Action, at  
812 least a first automatic operation belonging to the first dynamic process; and,  
813 output of at least one action implemented by at least one actor and deriving  
814 at least a second measurable value from said at least one action  
815 implemented by at least one actor;  
816  
817 (4) means for adapting the model according to any of changing business, dynamic  
818 process, and factual circumstances comprising:  
819 incorporating changes to at least one Element of the model in accordance  
820 with changes in or additional detail of the first dynamic process;  
821  
822 (5) means for representing some factual circumstance created via any of triggered  
823 Rule's Action, operational process, and Actor in the model and satisfying at least  
824 one Condition of at least one Rule in response to said factual circumstance;  
825  
826 (6) means for inferring a first process representation of a first emerging behavioral  
827 pattern of the first dynamic process comprising:  
828 means for detecting that a plurality of Rules that have been triggered;

829 means for inferring through logical inference that the plurality of Rules are  
830 partially ordered in time;  
831 means for incorporating in the model a representation of a dynamic pattern  
832 of operations driven by real-world conditions;  
833 means for storing the first process representation as part of the model; and,  
834 means for making the first behavioral pattern of the first dynamic process  
835 emerge via the first process representation;  
836 and,  
837  
838 (7) means for through the steps of creating, generating, adapting, representing,  
839 and inferring, actively and declaratively managing any portion of the first  
840 dynamic process via the model and therefore the model's output.



## A DECLARATIVE METHOD FOR BUSINESS MANAGEMENT

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